GEOGRAPHIC NEWS BULLETINS

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Photograph by Bernard F. Rogers, Jr.

GREEN GROW THE SHAMROCKS ON AN IRISH APRON

For this colleen the "wearing of the green" is an everyday affair, not confined to St. Patrick's Day at all (see Bulletin No. 1).

HOW TEACHERS MAY OBTAIN THE BULLETINS

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Wearing of the Green Again on St. Patrick's Day

"O PADDY, dear, and did you hear the news that's going round?" It's St. Patrick's Day again! And that is one time when Irish eyes are sure to be smiling.

St. Patrick died 1,475 years ago on March 17, and the occasion was not originally designed to be one of rejoicing. But when the good Irish get together and "get into talk" about their country's glories that are past but are living still in their memories, a celebration simply blossoms as naturally as a flower.

To show how they keep St. Patrick's memory, Irishmen wear a bit of green, most properly a shamrock (see illustration, cover), and most appropriately on their hats. Nor is that the only way of seeing that the color has gone to their heads. "Emerald Isle" they call their country, and not solely because it is a jewel. One of their favorite folk songs vows, "We'll live and die still wearing of the green." To green from blue they have changed their traditional flag bearing the fine pagan golden Harp of Tara, until the color alone signifies "Erin Go Bragh" (Ireland Forever) even without the motto.

Why Shamrock Was Chosen as Emblem

But why green, and why a shamrock, when Ireland is all abloom with the red geranium and the golden buttercup? Well, the story is a long one, for it reaches back more than a dozen centuries and gropes into the mists of legend, which in Ireland are pearlier than elsewhere, and a bit thicker.

Precious old manuscripts, still bright and beautiful enough to show their makers were dreaming of heavenly glories, describe an ancient earnest sage preaching on a green hill. It was Bishop Patrick trying to convert an Irish king and his family on the great Rock of Cashel in southeastern Munster. How could he explain a single Christian God to pagans, accustomed as they were to at least two major sun-gods, dozens of minor deities, and evil spirits galore? His eye fell upon a shamrock, three leaflets merging into one stem, a simple and familiar illustration of the Trinity. Today visitors ascend the same hill to see the evidences of his success—a monumental cross to the resourceful preacher and a magnificent cathedral, one of the finest in Ireland, although in ruins.

St. Patrick's influence extends a bit beyond a few fine ruins and a national preference for green. He established the oldest continuous church tradition in the British Isles. Later missionaries from Ireland set out to Christianize England, France, and especially Scotland. He encouraged learning, both studying books and making them, in such a way that Irish illuminated manuscripts were admired and copied all over Europe. Much credit is due him for Ireland's name, "The Island of Saints and Scholars."

Ireland Sheltered Culture During Barbarism in England

Yet people felt no need to stand in distant awe of him. Stories tell of his giving several young students some leather to make satchels for books which he saw them carrying in their girdles. Even the unstudious considered him sympathetic, having heard of his "conscious weakness in Latin composition."

It was probably St. Patrick who introduced the Roman method of building with stone and mortar into Ireland, where mud, wood, and thatch had previously built both palace and hovel. It was he who persuaded the high-king of Ireland to adopt Christian principles as a "constitutional amendment" to pagan laws.

Perhaps his triumph over Druid superstitions encouraged the legend that he became a Pied Piper and drove all snakes from Ireland. Tradition describes him praying on a lonely summit in County Mayo on the western coast—Croagh Patrick, Patrick's Mountain, which his stay made into an Irish Sinai. Flinging his famous handbell over a precipice on the southern side, he cast down at the same time a shower of snakes, toads, and reptiles of every description. Angels returned his bell, and he threw it down repeatedly with its accompanying avalanche of undesirable animals, until he had destroyed them all. Pilgrims flock to this picturesque peak, which is compared to a pyramid of purple coal, and ascend it barefoot, especially on Garland Sunday, the last in July. For surely it is a good place for the casting out of evil.

If some places in Ireland can be more sacred to the Irish than any other places, they must be the scenes of St. Patrick's life. They respect the hump-shaped hill of Slemish near Ballymena, where the kidnapped Briton tended his owner's flocks for six years of slavery, and prayed

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© Elmendorf from Galloway

WITHIN THE FORTIFIED HEART OF IRELAND

The statue of St. Patrick stands within the great circular fortifications of Rath na Riogh on the famous low hill of Tara in Meath. The bishop was accepted into this traditional capital of ancient Ireland after he had lighted an Easter beacon in 433 in defiance of the Druids (see Bulletin No. 1).

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Was It Cold Enough for You?

SPEAKING of the winter weather is appropriate for this week, which is the last before the official beginning of spring, on March 20. In reckoning the score of the past season, some very low temperatures must be taken account of.

The winter was cold enough to conquer Niagara Falls, freezing it dry and spanning it with a bridge of ice that many people walked across. It may go down in history as the winter that was cold enough to freeze the "whiskers" off a catfish, for catfish were reported found with their barbels frozen into ice at the top of a lake.

Many a shivering American, watching his thermometer hover far below normal this winter, has thought that his frosty bedroom must be about the coldest spot on earth. No doubt he thanked his lucky stars that he wasn't in the Antarctic with Lincoln Ellsworth.

Temperatures in United States Meet Antarctic Levels

Actually, however, many Americans might have found it considerably warmer in the Antarctic (where it was summer) than at home this winter. Ellsworth reported a temperature of only five below zero Fahrenheit one day during his flight across the South Polar continent, while in the United States some places have had temperatures down to 50 below zero.

Even 50 below is warm compared to some cold weather that has been recorded in the really frigid parts of the earth. Though the winter of 1935-36 will go down in history as one of America's coldest, it cannot compare with the winters that visit a region of northeastern Siberia, generally recognized as the "cold pole" of the earth.

There, at the town of Verkhoyansk, thermometers have dropped to 90 degrees below zero Fahrenheit (see illustration, next page). Devils Lake, North Dakota, had an average temperature of 21 degrees below zero for five weeks this winter, but Verkhoyansk has averaged as much as 58 below for the month of January in past years.

On really cold days in Verkhoyansk, the exhaled vapor of a man's breath crystallizes into crackling needles of ice, and breathing becomes painful. Ice forms in the nostrils of horses and threatens to suffocate them.

80 Below Zero in Antarctic Winter

But though Lincoln Ellsworth found it as warm as five below zero during the last Antarctic summer, the winter in the South Polar regions is a different story. Admiral Byrd, on his lone vigil at the advanced weather observation base, during the Antarctic winter, recorded a minimum temperature of 80 below. And this, incidentally, was only two degrees colder than the minimum temperature of 78 below recorded during the stratosphere flight of the National Geographic Society-Army Air Corps balloon *Explorer II* last November.

Summer temperatures both at the North and South Poles are much warmer than the coldest days experienced in some parts of the United States this winter. When Roald Amundsen discovered the South Pole in December, 1911, he reported that it was only 2.2 degrees below zero Fahrenheit. Peary at the North Pole, in April, 1909, found the temperature ranging from 11 to 30 below. Doubtless both Poles are far colder in winter, but no one has visited them at that time of year.

Any Polar explorer, however, would have found it cold enough to suit him at Riverside Ranger Station in Yellowstone Park, on February 9, 1933. On that date

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for relief as much as a hundred times a day. They remember that at Westport he made his escape from Ireland, sailing away as attendant to a cargo of Irish wolfhounds. His return, years later, as a bishop and a missionary left a trail of shrines across the length and breadth of Ireland, from Saul, where he is believed to have consecrated his first church in a *sabhal* or barn, all around and back again to nearby Downpatrick, where he is thought to be buried (see illustration, below). Pilgrims flock to Pettigo as the starting point for a trip to Station Island in Lough Erne, the scene of St. Patrick's vision of Purgatory.

St. Patrick's Cathedral in Dublin covers the site of an ancient church built on the island in a now subterranean stream, where the saint is said to have called forth a well. The little stream of Blackwater gets its name from waters upon which the saint placed the curse of darkness. Tradition points out his footprints in the hard rock of St. Patrick's Island, where he rested off the Skerries coast.

Note: See also "The Mist and Sunshine of Ulster," *National Geographic Magazine*, November, 1935; and "Ireland: The Rock Whence I Was Hewn," March, 1927.

Bulletin No. 1, March 16, 1936.

Photograph by Bernard F. Rogers, Jr.

THESE STRUCTURES GREW UP TO HONOR A SAINT'S BURIAL PLACE

In the graveyard behind this cathedral, a granite boulder labeled "Patric" covers the supposed grave of the saint. The old Celtic cross was recently pieced together. When several towns clamored for the honor of St. Patrick's burial, his body is said to have been placed in a cart drawn by four white oxen and buried where they stopped their ambling. The town of Downpatrick grew up around the spot.

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Macau (Macao), Portuguese Port of Happy Landings in China

THE *China Clipper,* still up in the air about a terminal in China, may settle down upon Macau, Portuguese colony across the Tyshan Bay from Hong Kong. Then the city of fish, firecrackers, and fan-tan may become even more famous as the port of happy landings.

Portuguese sailors, being European early birds in the Far East, got a choice "worm" in the shape of a fine location for their colony. Macau occupies the tip of a peninsular island in the Canton River's mouth, accompanied by two smaller islands, Taipa and Colôane. A great barrier wall behind the city separates these eleven square miles of Portugal from the vast territory that is China.

Oldest European Outpost in the Far East

In harboring the *China Clipper,* Macau will be living up to its reputation as a stronghold of Occidental influence in the Orient—in fact, the oldest. Daring Portuguese sailors, venturing from a western tip of Europe to an eastern tip of Asia, established a colony there in 1557, after several decades of bargaining. They helped China to rid the Canton River of pirates, and received Macau as their reward. China apparently regretted her generosity, however, and for the next three centuries collected rent from Portugal. In 1887, Portuguese rights to occupy and govern the Pacific port were confirmed by treaty. England wanted it, but consoled herself with Hong Kong, about 40 miles away.

Macau is a city of contradictions. Sailing into the bay, one sees first a Riviera town. Bright colored, stucco houses climb the terraced hillsides, and a wide marine boulevard, shaded by banyan trees and lined with dignified villas, follows the curving sea wall. But around a point is an Oriental harbor, packed with great square-built Chinese junks and fragile little matting-covered sampans. A four-mile channel dredged to the open sea and the removal of silt have recently opened it to larger vessels from England, Japan, United States, and the Netherlands.

For two centuries Macau, the first European port in the Far East, was an important shipping center for the China trade. When China and Japan opened their doors to western commerce, Hong Kong and other ports usurped first place, but Macau is still second as far as the fishing industry is concerned. Salted, dried, fresh, or still flopping, vast quantities of fish are sold here.

Gambling Is a Thriving Industry

At present, fish, firecrackers, incense, wine, opium, and gambling provide the city with a very creditable income. There are ordinarily at least three lottery drawings a day in Macau, and twelve dingy fan-tan dens have earned it the nickname of "Monte Carlo of the Orient." Anyone may visit the factory where crude black opium, worth thousands of dollars, is "cooked" in huge cauldrons. As for firecrackers, each one is made painstakingly by hand out of paper tubing, bits of clay, powder, a fuse, and some bright red paper. Their manufacture, ranking second in Macau's industries, produces millions of red, yellow, and green firecrackers and amounts to more than a million dollars.

Macau has its quieter moments. In a garden within the city, Portugal's great poet, Camoëns, wrote the "Lusiad," an epic celebrating the achievements of his contemporary, Vasco da Gama. Nearby is an old cemetery where men from Salem, Boston, and the ports of England are buried.

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the official thermometer there dropped to 66 below zero Fahrenheit, the record low temperature for the United States.

When it comes to producing real cold, Mother Nature is a "piker" when compared to modern scientists. Recently at the University of Leyden, the Netherlands, experimenters have come within a fraction of a degree of attaining "absolute zero," the "coldest cold," which is set theoretically at 459.6 degrees below zero Fahrenheit. By subjecting substances to such great cold, scientists hope to learn more about the properties and structure of matter.

This year's cold winter, incidentally, may possibly be a sample of a quarter of a century or so of an abnormally cold weather cycle to come, although it's too early to be certain. The Weather Bureau reports the United States has been having a period of warmer than normal weather for the last 25 years; before that there was a cold period of similar length. Such warm and cold cycles have alternated since weather records have been kept in this country. Grandpa is probably right when he tells how much colder the winters were when he was a boy, but future ones may be just as cold.

But if all this talk of great cold chills you, end the story with a few thoughts about Death Valley, California, where at times it grows so hot that thermometers have registered over 134 degrees *above* zero!

Note: Illustrations and text about some of the world's cold spots and how winter's severity obstructs communications are contained in the following articles: "Man's Farthest Aloft," *National Geographic Magazine*, January, 1936; "Exploring the Ice Age in Antarctica," October, 1935; "Winter in the Nation's Capital," February, 1935; "New York—An Empire within a Republic," November, 1933; "New Jersey Now!" May, 1933; "Colorado, A Barrier That Became a Goal," July, 1932; "Ohio, The Gateway State," May, 1932; "The Santa Fe Trail, Path to Empire," August, 1929; "The Green Mountain State," March, 1927; "A Maryland Pilgrimage," February, 1927; "With an Exile in Arctic Siberia," December, 1924; "The Scenery of North America," April, 1922; "Winter Rambles in Thoreau's Country" and "Winter Scenes" (duotone insert), February, 1920; and "First Flight to the North Pole," September, 1926.

Bulletin No. 2, March 16, 1936.

Photograph by Vladimir M. Zenzinov

"COLD" IN THEIR LANGUAGE MEANS 80 DEGREES BELOW

These Siberian snow-babies of Verkhoyansk need all the fur possible, even in boots and mittens, for they live in the coldest inhabited spot in the world, 70 miles above the Arctic Circle. Sleigh-riding would be no fun at all for them if their sleigh were not covered.

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World's Largest Man-Made Lake a Boulder Dam By-Product

"LET'S spend the week-end sailing across the desert!" Does that sound like a mirage? But this desert dream can come true for city dwellers of Phoenix, Arizona, or Salt Lake City, Utah. An aquatic desert holiday is now available to the three million people within a day's jaunt of Boulder Lake.

There, behind Boulder Dam, lies a reservoir already the largest artificial lake in the world, and yet little more than half grown. Originally planned for power, irrigation, and flood control, it has also developed into a scenic gem of first rank.

It may be a lake to man, but to animals it is a devastating flood. As the water rises, a foot or two daily, little wingless creatures scurry up hillsides to escape, only to find themselves marooned on rapidly shrinking islands. When these islands are gradually submerged, the sparse shrubbery protruding from their tops bears strange "fruit" of little rodents and reptiles.

A Modern Noah on Boulder Lake

A government conservationist, taking pity on their plight, went boating into the midst of these terrified tree-colonists, and offered them a free ride to dry land. They sprang into his boat, scuttling under seats for cover. Crowded on a diminishing island about three by six feet square, he rescued two cottontails, one jackrabbit, one desert kangaroo rat, two snakes, and three lizards.

A projecting peak has already been informally christened "Sheep Island," because of the stubborn old mountain sheep ram marooned there, which has refused to leave. Such incidents may occur daily as Boulder Lake lays up treasure in the shape of water, wealth, recreation, safety, and beauty. Its giant bulk has already backed up enough water to flood the State of Connecticut 10 feet deep. Turbulent muddy Colorado River deepens far behind the huge dam in Black Canyon and waits quietly to be needed for irrigation or power, meanwhile acquiring beauty as it loses freedom.

From Black Canyon through Boulder, Virgin, Travertine, and Iceberg Canyons into magnificent Grand Canyon itself, Boulder Lake's peaceful waters are rising. Between narrow reaches in the gorges, the lake bulges dumb-bell fashion across broad expanses of flat desert. Spring floods in May or June will lift it higher. Already deeper than Lake Erie, it will have a shore line of 550 miles and an area of 145,000 acres. Then it will be a dozen times larger than the lake above Assuan Dam on the Nile.

Lake Will Weigh 42 Billion Tons

If a mirror could reflect this dashing painted river-lady of the desert, she would see herself losing her slim active figure, gaining weight and width on the way to a possible girth of 40 miles at the juncture of the Virgin River. Admirers estimate that her weight may reach 42 billion tons. And what a change in temperament accompanies her expansion into a long and bulging lake! Calmer, bluer, far more reflective, less given to haste and rapids scurrying around rocks—thus the Colorado River would see herself, becoming Boulder Lake and a tourist attraction!

At intervals Boulder Lake will lap over sunny desert, now dotted with dull, gray-green clumps of mesquite and cactus. These dusty areas are subject to change without further notice, for at the water's approach, they burst into bright bloom with buttercup, desert poppy, evening primrose, Indian paintbrush, and yucca.

As great a lure to visitors is the knowledge that rising water in Boulder Lake

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The *Empress of China,* first merchant vessel of the newly created United States, put in at Macau on her maiden voyage, before proceeding to Canton to fill her hold with tea, chinaware, silks, nankeens, and cassia.

First Lighthouse on China Coast

For many years Macau was the only safe haven for western ships venturing into the China Sea. Its sturdy, white lighthouse, still standing on a wooded hill, was the first beacon lighted on the China coast.

Note: See also "Coastal Cities of China," *National Geographic Magazine,* November, 1934; and "Macao, Land of Sweet Sadness," September, 1932.

Bulletin No. 3, March 16, 1936.

Photograph by Edgar Allen Forbes

ANTI-PIRATE PRECAUTIONS ON THE WAY TO MACAU

The Portuguese received Macau from China as a reward for ridding the Canton River of pirates, and pirate-prevention has been popular ever since. On Hong Kong-Macau steamers, which cross the Canton River's mouth, preparedness means guards armed with rifle and revolver. Police and guards are usually East Indians, no doubt from Portugal's East Indian possessions, Goa, Damão, and Diu.

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The Bahrein Islands Pour Forth Oil as Well as Pearls

PLANS for an oil refinery on the Bahrein Islands have been announced. Already famed as a source of pearls, they assume even greater commercial importance with products useful as well as ornamental.

A mere spattering of lily-pad islands on the blue expanse of the Persian Gulf, this group includes four sizable dry spots and several uninhabited islets. They take their name from the largest and most important member, Bahrein, which is 10 miles wide and nearly 27 miles long. Except for a rocky hill about 400 feet high on the main island, they are largely low-lying.

Fortifications make them a British naval base to protect English oil rights in Iraq and Iran (Persia), and to insure India's communications by providing a landing place for planes of the air mail service between India and England.

Destiny Closely Linked with India

Although theoretically an independent sheikdom, ruled by an Arabian sheik, the Bahrein Islands are actually under British protection. Treaties exist between the Sheik and the Government of India, and since 1904 a British Indian representative has resided in the islands.

The Bahrein archipelago is the center of the Persian Gulf's important pearl-fishing industry. World famous as a source of natural pearls, the islands have exported more than five million dollars worth of the gems in a single year.

Bahrein pearls have been exploited for so many centuries that they are said to have adorned the Queen of Sheba. They are obtained by methods probably old in her time. Naked divers with beeswax in their ears and clamps on their nostrils tie stones to themselves to help them descend. A rope hauls them up with their finds. A modern diving suit brought to the pearling banks about fifteen years ago caused such a furor that its owner made a hasty retreat, and laws now forbid importation of diving apparatus.

Drinking Water from Under the Sea

During a busy season, 1,000 boats may be anchored at once off Bahrein, and no doubt they have all had exciting sailing among the islands. Since the approach to Bahrein harbor is through the pearling banks, incoming vessels have to pick their way cautiously between these boats. Other hindrances to navigation are thick fogs, sand haze, and mirages. Winds of the region rise unexpectedly to gales in a few hours, and abate just as suddenly.

Artesian wells supply several of the larger towns with drinking water. Before they were drilled, most of the drinking water came from fresh-water springs, many of them bubbling up under the sea. Natives either tapped these by putting down hollow bamboos through which the fresh water rose, or dived down to them, and filled leather water bottles which they carried up through the sea to the surface.

Even with irrigation, only about one-twentieth of Bahrein's area is cultivated. A strip along the north coast two or three miles wide is fertile, and produces dates, fruit, alfalfa, and vegetables. Date groves also extend down the west coast. The remainder of the island is largely desert with occasional growths of scrubs and camel grass, over which Arabs pursue the island's chief sports: hawking sand grouse and bustards, or running down hares with hounds.

The majority of the islanders make their living by pearl diving. Others build boats, weave sailcloth and reed mats, work in the oil fields, raise dates, breed

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gives access to remote canyons, some of them unnamed or even untraversed by white men. "It seems intended by Nature that Colorado River along the greater portion of its lone and majestic way shall be forever unvisited and unmolested," commented an explorer, only 80 years ago. But Boulder Lake vetoes his prophecy.

It will be possible for a motorboat to sail from Boulder Dam to the mouth of Grand Canyon, about 115 miles as the launch chugs, navigating gorges previously almost impassable because of shallow shifting channels or churning rapids. Undiscovered sprays of waterfalls, plunging like tinsel threads off precipices; traces of vanished Indian tribes; giant stone "faces," frowning from glacier-carved cliffs; striped gorges aglow with color—all await the explorer of tomorrow.

While new vistas will be revealed, some familiar scenes will be submerged and added to legends of sunken cities or lost continents. The little vacated town of St. Thomas will meet a watery grave. Lost City, site of excavations revealing Pueblo and Piute Indian habitations as far back as 200 B. C., will be lost again except to achaeologists in deep-sea diving suits.

As a recreation area Boulder Lake will offer sightseeing, boating, camping, swimming, fishing, and field study in natural sciences. Visitors in 1935 numbered 365,000. Motion picture companies have applied for studio sites, and resort developments are on the way. Already pleasure boats ply up and down—especially remarkable since the downstream trip until recently had been completed only six or eight times, and the upstream passage never.

Thus the Colorado River faces a new era, even more exciting than Revolutionary days, when the Spanish missionary, Father Francisco Garces, named it for its vivid colors, or fifty years later when the first American—trapper James Ohio Pattie—saw it. Now the Santa Fe trail crosses it at Boulder Dam and brings modern motor pioneers to explore and enjoy.

Note: For other data about Boulder Lake and Dam, the Colorado River, and the region to be benefited by this great engineering project, see "Southern California at Work," *National Geographic Magazine*, November, 1934; "Nature's Scenic Marvels of the West," July, 1933; "Flying," May, 1933; "Colorado, a Barrier That Became a Goal," July, 1932; "Santa Fe Trail, Path to Empire," August, 1929; "Arizona Comes of Age," January, 1929; "Pirate Rivers and Their Prizes," July, 1926; "The Non-Stop Flight Across America," July, 1924; and "Surveying the Grand Canyon of the Colorado," May, 1924.

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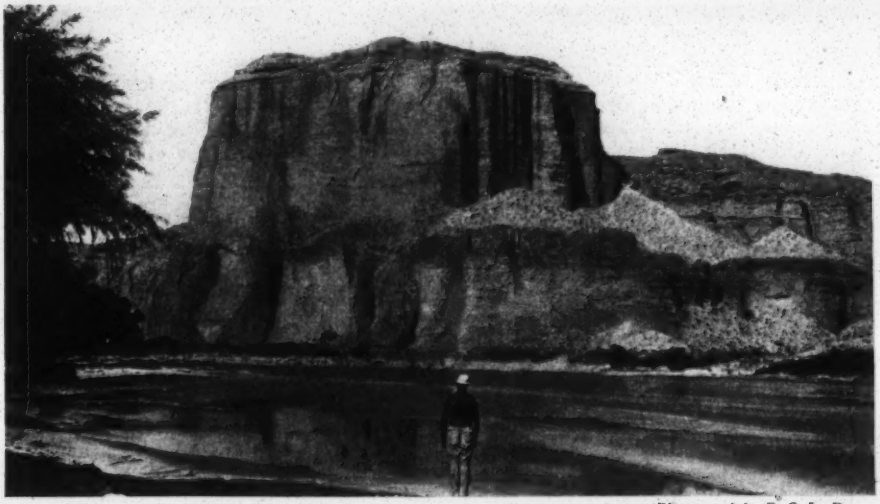

Photograph by E. C. La Rue

TO BE A SCENE FROM THE BOTTOM OF A LAKE

Boulder Lake will inundate the lower ground in this scene, just above the mouth of the Virgin River. In this vicinity the Lake will reach its greatest breadth. The impressive butte in the center is called "The Temple." Will it become "Temple Island"?

donkeys, or, using a peculiar kind of weed as bait, catch the fish so prolific in the Gulf.

Most of the archipelago's 120,000 inhabitants are Arabs, although there are European and American "colonies" and communities of wealthy Iranian (Persian) and Indian merchants. Minarets towering above the date groves indicate that the native religion is Mohammedan.

Second Port in Gulf To Have Electricity

Stretching for over a mile along the north shore of Bahrein Island is Manama, the chief port and commercial center of the archipelago. Connected with Manama by motor launches and a stone causeway is Muharraq, another large town on an island of the same name, northeast of Bahrein.

After Bushire, Persia, Manama was the first port in the Gulf to boast electricity. A power plant installed in 1930 provides illumination and current for electric fans and refrigerators. Other traces of modernization include a few telephones, hospitals, and schools. Some of the Persians and other aliens wear semi-European clothes, but the Arabs cling to their traditional dress. Although automobiles are coming into use, natives still travel from village to village along the shores chiefly in boats, or inland on donkeys.

Note: For additional material about Iran and the Bahrein Islands see: "Exploring the Secrets of Persepolis," *National Geographic Magazine*, October, 1933; "Flights from Arctic to Equator," April, 1932; "Citroen Trans-Asiatic Expedition Reaches Kashmir," October, 1931; "The World's Greatest Overland Explorer," November, 1928; "Modern Persia and Its Capitals" and "Persian Caravan Sketches," April, 1921; and "The Rise of the New Arab Nation," November, 1919.

Bulletin No. 5, March 16, 1936.

Photograph from Comdr. Francesco de Pinedo

OIL LUBRICATES BUSINESS IN THE PERSIAN GULF

Gasoline (in drums, at left) and oil, possibly from the Bahrein Islands, have changed scenes in the Gulf. Instead of crude pitch-covered gufa boats exclusively, steamers, yachts, and airplanes visit the waters off the coasts of Arabia and Iran (Persia).

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